

## **CLAIMS**

What is claimed is:

1        1. A mounting system for a pellicle comprising:  
2                  a mounting structure for coupling a pellicle to a mask, wherein a sealed  
3                  interior portion is formed between the pellicle, the mask and the mounting  
4                  structure; and

5                  a port on the mounting structure through which a pressure difference can  
6                  be created between the interior portion and an exterior environment.

1        2. The mounting system of claim 1, further comprising a pressure regulator in  
2                  communication with the port to control a pressure in the interior portion.

1        3. The mounting system of claim 2, further comprising a source of high pressure gas  
2                  coupled to the pressure regulator, and a source of low pressure gas coupled to the  
3                  pressure regulator.

1        4. The mounting system of claim 3, wherein one of the sources of pressure gas is the  
2                  exterior environment.

1        5. The mounting system of claim 2, further comprising a pressure sensor operatively  
2                  coupled to the pressure regulator for detecting a pressure of the interior portion.

1           6. The mounting system of claim 2, further comprising a position sensor operatively  
2           coupled to the pressure regulator to determine the position of the pellicle;  
3                 wherein the pressure difference is controlled by the pressure regulator to  
4           maintain a flat surface on the pellicle based on a reading from the position sensor.

1           7. The mounting system of claim 2, further comprising a velocity sensor operatively  
2           coupled to the pressure regulator to determine the velocity of the pellicle;  
3                 wherein the pressure difference is controlled by the pressure regulator to  
4           maintain a flat surface on the pellicle based on a reading from the velocity sensor.

1           8. The mounting system of claim 1, further comprising a calibrated leak from the  
2           interior portion to the exterior environment.

1           9. The mounting system of claim 1, further comprising means for controlling the  
2           pressure difference to maintain a flat surface on the pellicle.

1           10. The mounting system of claim 1, further comprising a position sensor to  
2           determine the position of the pellicle.

1           11. The mounting system of claim 1, further comprising an aerodynamic fairing  
2           adjacent the mounting structure.

12. A pellicle mounting system for a mask, the mounting system comprising:
    - an aerodynamic fairing adjacent the mask, the fairing having a taper to reduce aerodynamic drag on the pellicle.
  13. The mounting system of claim 12, further comprising:
    - a mounting structure for coupling the pellicle to the mask, wherein a sealed interior portion is formed between the pellicle, the mask and the mounting structure; and
    - a port on the mounting structure through which a pressure difference can be created between the interior portion and an exterior environment.
  14. The mounting system of claim 13, further comprising:
    - a pressure regulator to adjust a pressure in the interior portion;
    - a source of high pressure gas coupled to the pressure regulator; and
    - a source of low pressure gas coupled to the pressure regulator.
  15. The mounting system of claim 14, further comprising a position sensor operatively coupled to the pressure regulator to determine the position of the pellicle;
    - wherein the pressure difference is controlled by the pressure regulator to maintain a flat surface on the pellicle based on a reading from the position sensor.

16. The mounting system of claim 14, further comprising a velocity sensor operatively coupled to the pressure regulator to determine the velocity of the pellicle;

wherein the pressure difference is controlled by the pressure regulator to maintain a flat surface on the pellicle based on a reading from the velocity sensor

17. The mounting system of claim 13, further comprising means for controlling the pressure difference to maintain a flat surface on the pellicle.

1           18. A method of reducing distortion of a pellicle for a mask, the method comprising  
2           the steps of:

3                 sealing the pellicle to the mask using an airtight mounting structure such  
4                 that an interior portion is created between the pellicle, the mask and the mounting  
5                 structure; and

6                 regulating a pressure in the interior portion to maintain a flat surface on  
7                 the pellicle.

1           19. The method of claim 18, further comprising the step of providing an aerodynamic  
2           fairing adjacent the mask to reduce turbulent airflow across the pellicle.

1           20. The method of claim 18, wherein the pressure is regulated according to feedback  
2           from at least one of a pressure sensor coupled to the interior portion, a position  
3           sensor for the pellicle, and a velocity sensor for the pellicle.